Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of managing resources of a system, comprising:

processing a signal;

estimating signal processing complexity; and

adjusting adaptation speed of an echo canceller for processing the signal by changing the number of coefficients of the echo canceller, when the estimated complexity exceeds a threshold.

2. (Previously Presented) The method of claim 1 further comprising bypassing the echo canceller and suppressing echo of the signal by an echo suppressor instead, when the estimated complexity exceeds a threshold.

3. (Currently Amended) ~~The~~ A method of ~~claim 1~~ managing resources of a system, comprising:

processing a signal;

estimating signal processing complexity; and

adjusting adaptation speed of an echo canceller for processing the signal, when the estimated complexity exceeds a threshold, wherein the signal processing comprises adaptively canceling the echos from the signal, and the estimating signal

processing complexity comprises estimating echo return loss enhancement (ERLE) of the echo canceller.

4. (Previously Presented) The method of claim 3 wherein the estimating signal processing complexity comprises estimating maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

5. (Withdrawn) The method of claim 1 wherein the data processing comprises encoding the data, and the data processing complexity reduction comprises reducing the complexity of the data encoding.

6. (Withdrawn) The method of claim 5 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises reducing complexity of the adaptive codebook search.

7. (Withdrawn) The method of claim 5 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises bypassing the adaptive codebook search.

8. (withdrawn) The method of claim 5 wherein the data encoding comprises performing an excitation search, and the data encoding complexity reduction comprises reducing the complexity of the excitation search.

9. (Withdrawn) The method of claim 8 wherein the excitation search comprises a fixed excitation search.

10. (Withdrawn) The method of claim 1 wherein the data processing comprises decoding the data, and the data processing complexity reduction comprises reducing the complexity of the data decoding.

11. (Withdrawn) The method of claim 10 wherein the data processing further comprises filtering the decoded data, and the data decoding complexity reduction comprises disabling the data filtering.

12. (Withdrawn) The method of claim 1 wherein the data processing complexity reduction comprises reducing the data processing complexity to one of a plurality complexity reduction levels based on a magnitude in which the estimated data processing complexity exceeds the threshold.

13. (Withdrawn) The method of claim 1 wherein the data comprises a near and far end signal, and the data processing comprises canceling echos on a near end signal, the echos being introduced into the near end signal by a far end signal, and the data processing complexity estimation comprising estimating the data processing complexity based on power of the far end signal and power of the echo canceled near end signal.

14. (Withdrawn) The method of claim 1 wherein the data comprises voice including active voice and silent periods, and the data processing comprises encoding the data, the data encoding including detecting active voice, the data processing complexity estimation comprising estimating the data processing complexity based on the active voice detection,

15. (Withdrawn) The method of claim 14 wherein the data processing complexity reduction comprises reducing the complexity of the data encoding.

16. (Withdrawn) The method of claim 1 wherein the data comprises first and second frames, the first frame preceding the second frame in time, and wherein the data processing complexity estimation for the second frame is based on the data in the first frame.

17. (Currently Amended) A method of managing resources of a system, comprising:

performing a plurality of signal processing functions on a signal, including echo cancellation function;

estimating average complexity of each of the signal processing functions;

summing the estimated average complexity of the each of the signal processing functions; and

adjusting adaptation speed of the echo cancellation function by changing the number of coefficients of an echo

canceller, when the sum of the estimated average complexities exceeds a threshold.

18. (Previously Presented) The method of claim 17 further comprising bypassing the echo cancellation function and suppressing echo of the signal by an echo suppressor instead, when the sum of the estimated average complexities exceeds a threshold.

19. (Currently Amended) The method of claim ~~17~~ 20 wherein adjusting adaptation speed of the echo cancellation function comprises reducing the complexity of the echo cancellation adaption.

20. (Currently Amended) ~~The~~ A method of ~~claim 19~~ managing resources of a system, comprising:

performing a plurality of signal processing functions on a signal, including echo cancellation function;

estimating average complexity of each of the signal processing functions;

summing the estimated average complexity of the each of the signal processing functions; and

adjusting adaptation speed of the echo cancellation function, when the sum of the estimated average complexities exceeds a threshold, wherein the estimating signal processing complexity comprises estimating maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

21. (Withdrawn) The method of claim 17 wherein said at least one of the system functions comprises encoding the data, and the complexity reduction comprises reducing the complexity of the data encoding.

22. (Withdrawn) The method of claim 21 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises reducing complexity of the adaptive codebook search.

23. (Withdrawn) The method of claim 21 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises bypassing the adaptive codebook search.

24. (Withdrawn) The method of claim 21 wherein the data encoding comprises performing an excitation search, and the data encoding complexity reduction comprises reducing the complexity of the excitation search.

25. (Withdrawn) The method of claim 24 wherein the excitation search comprises a fixed excitation search.

26. (Withdrawn) The method of claim 17 wherein the complexity reduction comprises reducing the complexity of said at least one of the system functions such that system complexity is reduced to one of a plurality complexity reduction levels

based on a magnitude in which the sum of the estimated average complexities exceeds the threshold.

27. (Withdrawn) The method of claim 17 further comprising detecting when system complexity exceeds the threshold after the complexity reduction of said at least one of the system functions, and further reducing the complexity of said at least one of the system functions or reducing the complexity of at least a second one of the system functions when the system complexity exceeds the threshold.

28. (Withdrawn) The method of claim 17 wherein the data comprises voice including active voice and silent periods, and said at least one of the system functions comprises encoding the data, the data encoding including detecting active voice, the average complexity estimation of the data encoding being based on the active voice detection.

29. (Withdrawn) The method of claim 28 wherein the data processing complexity reduction comprises reducing the complexity of the data encoding.

30. (Withdrawn) The method of claim 17 wherein said at least one of the system functions comprises decoding the data, and the complexity reduction comprises reducing the complexity of the data decoding.

31. (Withdrawn) The method of claim30 wherein the data decoding comprises filtering the decoded data, and the data decoding complexity reduction comprises disabling data filtering.

32. (Withdrawn) The method of claim 17 wherein the data comprises first and second frames, the first frame preceding the second frame in time, and wherein the data processing complexity estimation for each of the system functions for the second frame is based on the data in the first frame.

33. (Currently Amended) A data transmission system, comprising:

a telephony device which outputs a signal; and

a signal processor coupled to the telephony device, the signal processor comprising a resource manager that estimates signal processor complexity and adjusts adaptation speed of an echo canceller for processing the signal by changing the number of coefficients of the echo canceller, when the estimated complexity exceeds a threshold.

34. (Withdrawn) The data transmission system of claim 33 wherein the resource manager reduces the signal processor complexity to one of a plurality of complexity reductions levels based on a magnitude in which the estimated signal processor complexity exceeds the threshold.

35. (Previously Presented) The data transmission system of claim 33 wherein the signal processor comprises an echo suppressor, and the resource manager reduces the signal processor complexity by bypassing the echo canceller and suppressing echo of the signal by the echo suppressor instead, when the estimated complexity exceeds a threshold.

36. (Previously Presented) The data transmission system of claim 33 wherein the resource manager estimates signal processor complexity by estimating echo return loss enhancement (ERLE) of the echo canceller.

37. (Previously Presented) The data transmission system of claim 36 wherein the resource manager estimates maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

38. (Withdrawn) The data transmission system of claim 33 wherein the signal processor comprises an encoder, and the resource manager reduces the signal processor complexity with encoder complexity reductions.

39. (Withdrawn) The data transmission system of claim 38 wherein the encoder searches an adaptive codebook, and the resource manager reduces the encoder complexity by reducing search complexity of the adaptive codebook.

40. (Withdrawn) The data transmission system of claim 38 wherein the encoder includes an adaptive codebook, and the resource manager reduces the encoder complexity with an adaptive codebook bypass.

41. (Withdrawn) The data transmission system of claim 38 wherein the encoder performs an excitation search, and the resource manager reduces the encoder complexity by reducing complexity of the excitation search.

42. (Withdrawn) The method of claim 41 wherein the excitation search comprises a fixed excitation search.

43. (Withdrawn) The data transmission system of claim 33 wherein the signal processor comprises an echo canceller to cancel echos from a near end signal, the echos being introduced into the near end signal by a far end signal, and the resource manager estimates the signal processor complexity based on power of the far end signal and power of the echo canceled near end signal.

44. (Withdrawn) The data transmission system of claim 33 wherein the signal processor comprises a voice encoder to process voice including active voice and silent periods, and a voice activity detector, and wherein the resource manager estimates the signal processor complexity based on the active voice detection and reduces the signal processor complexity by reducing the complexity of the voice encoder.

45. (Withdrawn) The data transmission system of claim 33 wherein the signal processor comprises an decoder, and the resource manager reduces the signal processor complexity with decoder complexity reductions.

46. (Withdrawn) The data transmission system of claim 45 wherein the decoder includes a post filter, and the resource manager reduces the decoder complexity by disabling the post filter.

47. (Withdrawn) The data transmission system of claim 33 further comprising a public switched network coupled between the telephony device and the signal processor.

48. (Withdrawn) The data transmission system of claim 33 wherein the telephony device comprises a telephone.

49. (Currently Amended) A resource manager for a signal processor, comprising:

estimation means for estimating signal processor complexity; and

adjusting means for adjusting adaptation speed of an echo canceller for processing the signal <u>by changing the number of coefficients of the echo canceller</u>, when the estimated complexity exceeds a threshold.

50. (Previously Presented) The resource manager of claim 49 further comprising echo suppressing means, and wherein the adjusting means comprises means for bypassing the echo canceller and suppressing echo of the signal by the echo suppression means instead, when the estimated complexity exceeds a threshold.

51. (Previously Presented) The resource manager of claim 49 wherein the estimation means comprises means for estimating echo return loss enhancement (ERLE) of the echo canceller .

52. (Previously Presented) The resource manager of claim 49 wherein the estimation means comprises means for estimating maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

53. (Withdrawn) The resource manager of claim 49 wherein the signal processor includes an encoder, and the reduction means comprises means for reducing the complexity of the encoder.

54. (Withdrawn) The resource manager of claim 53 wherein the encoder includes means for searching an adaptive codebook, and the encoder complexity reduction means comprises means for reducing complexity of the adaptive codebook search.

55. (Withdrawn) The resource manager of claim 53 wherein the encoder includes means for searching an adaptive

codebook, and the encoder complexity reduction means comprises means for bypassing the adaptive codebook search.

56. (Withdrawn) The resource manager of claim 53 wherein the encoder includes means for performing an excitation search, and the encoder complexity reduction means comprises means for reducing the complexity of the excitation search.

57. (Withdrawn) The method of claim 56 wherein the excitation search comprises a fixed excitation search.

58. (Withdrawn) The resource manager of claim 49 wherein the reduction means comprises means for reducing the signal processor complexity to one of a plurality complexity reduction levels based on a magnitude in which the estimated complexity exceeds the threshold.

59. (Withdrawn) The resource manager of claim 49 wherein the signal processor comprises an echo canceller to cancel echos from a near end signal, the echos being introduced into the near end signal by a far end signal, and the resource manager estimates the signal processor complexity based on power of the far end signal and power of the echo canceled near end signal.

60. (Withdrawn) The resource manager of claim 49 wherein the signal processor includes a voice encoder to process voice having active voice and silent periods and an active voice

detector, and wherein the estimation means estimates the signal processor complexity based on the detection of active voice, and the reduction means further comprises means for reducing the complexity of the voice encoder.

61. (Withdrawn) The resource manager of claim 49 wherein the signal processor includes a decoder, and the reduction means comprises means for reducing the complexity of the decoder.

62. (Withdrawn) The resource manager of claim 60 wherein the decoder includes a post filter, and the decoder complexity reduction means comprises means for disabling the post filter.

63. (Currently Amended) A resource manager for a signal processor performing a plurality of functions including echo cancellation function, comprising:

estimation means for estimating average complexity of each of the functions;

summing means for summing the estimated average complexity of each of the functions; and

adjusting means adjusting adaptation speed of the echo cancellation function by changing the number of coefficients of an echo canceller, when the sum of the estimated average complexities exceeds a threshold.

64. (Previously Presented) The resource manager of claim 63 further comprising echo suppress means, and wherein the adjusting means comprises means for bypassing the echo canceller and suppressing echo of the signal by the echo suppressing means instead, when the estimated complexity exceeds a threshold.

65. (Previously Presented) The resource manager of claim 63 wherein the adjusting means comprises means for estimating echo return loss enhancement (ERLE) of the echo canceller.

66. (Previously Presented) The resource manager of claim 63 wherein the adjusting means comprises means for estimating maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

67. (Withdrawn) The resource manager of claim 63 wherein said at least one of the system functions comprises an encoder, and the reduction means comprises means for reducing the complexity of the encoder.

68. (Withdrawn) The resource manager of claim 67 wherein the encoder searches an adaptive codebook, and the encoder complexity reduction means further comprises means for reducing complexity of the adaptive codebook search.

69. (Withdrawn) The resource manager of claim 67 wherein the encoder includes an adaptive codebook, and the

encoder complexity reduction means further comprises means for bypassing the adaptive codebook search.

70. (Withdrawn) The resource manager of claim 67 wherein the encoder performs an excitation search, and the encoder complexty reduction means further comprises means for reducing the complexity of the excitation search.

71. (Withdrawn) The resource manager of claim 70 wherein the excitation search comprises a fixed excitation search.

72. (Withdrawn) The resource manager of claim 63 wherein the reduction means comprises means for reducing the complexity of said at least one of the system functions such that system complexity is reduced to one of a plurality complexity reduction levels based on a magnitude in which the sum of estimated average complexities exceeds the threshold.

73. (Withdrawn) The resource manager of claim 63 further comprising means for detecting when system complexity exceeds the threshold after the complexity reduction of said at least one of the system functions, and means for further reducing the complexity of said at least one of the system functions or reducing the complexity of at least a second one of the system functions when the system complexity exceeds the threshold.

74. (Withdrawn) The resource manager of claim 63 wherein the signal processor includes a voice encoder to encode voice including active voice and silent periods, and a voice activity detector, the estimation means comprising means for estimating the signal processing complexity based on the active voice detection, and the reduction means comprising means for reducing the complexity of the voice encoder.

75. (Withdrawn) The resource manager of claim 63 wherein said at least one of the system functions comprises a decoder, and the reduction means comprises means for reducing the complexity of the decoder.

76. (Withdrawn) The resource manager of claim75 wherein the decoder comprises a post filter, and the decoder complexity reduction means further comprises means for disabling post filter.

77. (Currently Amended) Computer-readable media embodying a program of instructions executable by a computer to perform a method of managing resources of a signal processing system, the method comprising:

estimating signal processing complexity; and

adjusting adaptation speed of an echo canceller for processing the signal by changing the number of coefficients of the echo canceller, when the estimated complexity exceeds a threshold.

78. (Previously Presented) The computer-readable media of claim 77 further comprising instructions for bypassing the echo canceller and suppressing echo of the signal by an echo suppressor instead, when the estimated complexity exceeds a threshold.

79. (Previously Presented) The computer-readable media of claim 77 wherein the signal processing comprises adaptively canceling the echos from the signal, and the estimating signal processing complexity comprises estimating echo return loss enhancement (ERLE) of the echo canceller.

80. (Previously Presented) The computer-readable media of claim 77 wherein the estimating signal processing complexity comprises estimating maximum power level of a reference signal, long term average power of an error signal, and long term average power of a near end signal.

81. (Withdrawn) The method of claim 77 wherein the data processing comprises encoding the data, and the data processing complexity reduction comprises reducing the complexity of the data encoding.

82. (Withdrawn) The method of claim 81 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises reducing complexity of the adaptive codebook search.

83. (Withdrawn) The computer-readable media of claim 81 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises bypassing the adaptive codebook search.

84. (Withdrawn) The computer-readable media of claim 81 wherein the data encoding comprises performing an excitation search, and the data encoding complexity reduction comprises reducing the complexity of the excitation search.

85. (Withdrawn) The computer-readable media of claim 84 wherein the excitation search comprises a fixed excitation search.

86. (Withdrawn) The computer-readable media of claim 77 wherein the data processing complexity reduction comprises reducing the data processing complexity to one of a plurality complexity reduction levels based on a magnitude in which the estimated data processing complexity exceeds the threshold.

87. (Withdrawn) The computer-readable media of claim 77 wherein the data comprises a near and far end signal, and the data processing comprises canceling echos on a near end signal, the echos being introduced into the near end signal by a far end signal, the data processing complexity estimation comprising estimating the data processing complexity based on power of the far end signal and power of the echo canceled near end signal.

88. (Withdrawn) The computer-readable media of claim 77 wherein the data comprises voice including active voice and silent periods, and the data processing comprises encoding the data, the data encoding including detecting active voice, the data processing complexity estimation comprising estimating the data processing complexity based on the active voice detection.

89. (Withdrawn) The computer-readable media of claim 88 wherein the data processing complexity reduction comprises reducing the complexity of the data encoding.

90. (Withdrawn) The computer-readable media of claim 77 wherein the data processing comprises decoding the data, and the data processing complexity reduction comprises reducing the complexity of the data decoding.

91. (Withdrawn) The computer-readable media of claim 90 wherein the data decoding further comprises filtering the decoded data, and the data decoding complexity reduction comprises disabling the data filtering.

92. (Withdrawn) The computer-readable media of claim 77 wherein the data comprises first and second frames, the first frame preceding the second frame in time, and wherein the data processing complexity estimation for the second frame is based on the data in the first frame.

93. (Currently Amended) Computer-readable media embodying a program of instructions executable by a computer to perform a method of managing resources of a system which performs a plurality of signal processing functions including echo cancellation function on a signal, the method comprising:

estimating average complexity of each of the signal processing functions;

summing the estimated average complexity of the each of the signal processing functions; and

adjusting adaptation speed of the echo cancellation function by changing the number of coefficients of the echo canceller, when the sum of the estimated average complexities exceeds a threshold.

94. (Previously Presented) The computer-readable media of claim 93 further comprising instructions for bypassing the echo cancellation function and suppressing echo of the signal by an echo suppressor instead, when the sum of the estimated average complexities exceeds a threshold.

95. (Previously Presented) The computer-readable media of claim 93 wherein the adjusting adaptation speed of the echo cancellation function comprises reducing the complexity of the echo cancellation adaption.

96. (Previously Presented) The computer-readable media of claim 93 wherein said estimating signal processing complexity comprises estimating maximum power level of a reference signal,

long term average power of an error signal, and long term average power of a near end signal.

97. (Withdrawn) The computer-readable media of claim 93 wherein said at least one of the system functions comprises encoding the data, and the complexity reduction comprises reducing the complexity of the data encoding.

98. (Withdrawn) The computer-readable media of claim 97 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises reducing complexity of the adaptive codebook search.

99. (Withdrawn) The computer-readable media of claim 97 wherein the data encoding comprises searching an adaptive codebook, and the data encoding complexity reduction comprises bypassing the adaptive codebook search.

100. (Withdrawn) The computer-readable media of claim 97 wherein the data encoding comprises performing an excitation search, and the data encoding complexity reduction comprises reducing the complexity of the excitation search.

101. (Withdrawn) The computer-readable media of claim 100 wherein the excitation search comprises a fixed excitation search.

102. (Withdrawn) The computer-readable media of claim 93 wherein the complexity reduction comprises reducing the complexity of said at least one of the system functions such that system complexity is reduced to one of a plurality complexity reduction levels based on a magnitude in which the estimated average complexities exceeds the threshold.

103. (Withdrawn) The computer-readable media of claim 93 further comprising detecting when system complexity exceeds the threshold after the complexity reduction of said at least one of the system functions, and further reducing the complexity of said at least one of the system functions or reducing the complexity of at least a second one of the system functions.

104. (Withdrawn) The computer-readable media of claim 93 wherein the data comprises voice including active voice and silent periods, and said at least one of the system functions comprises encoding the data, the data encoding including detecting active voice, the average complexity estimation of the data encoding being based on the active voice detection.

105. (Withdrawn) The computer-readable media of claim 104 wherein the complexity reduction comprises reducing the complexity of the data encoding.

106. (Withdrawn) The method of claim 93 wherein the data processing comprises decoding the data, and the data processing

complexity reduction comprises reducing the complexity of the data decoding.

107. (Withdrawn) The computer-readable media of claim105 wherein the data decoding comprises filtering the decoded data, and the data decoding complexity reduction comprises disabling data filtering.

108. (Withdrawn) The computer-readable media of claim 93 wherein the data comprises first and second frames, the first frame preceding the second frame in time, and wherein the data processing complexity estimation for the second frame is based on the data in the first frame.